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Pippa L. Craig

University of Notre Dame Australia, pippa.craig@nd.edu.au

Christine Phillips

Sally Hall

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**Building social capital with interprofessional student teams
in rural settings: a service learning model**

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INTRODUCTION

Interprofessional learning (IPL) in health professional education is based on the notion that learning together will support more effective ways of working together.¹ IPL has the potential to improve interprofessional collaboration and the effectiveness and quality of patient care. Practice-based, rather than classroom-based, collaborative learning has been commended as an effective application of IPL.²⁻⁷ However, it can be cumbersome to arrange and supervise.⁸ In rural Australia with its relative workforce shortage, sustainable, practice-based IPL can be particularly challenging.⁹

In this paper, we describe a model of IPL – the Health ‘Hubs and Spokes’ (HHS) Project – which was based in rural towns and organised around locally-relevant priorities. HHS involved small teams of students from different disciplines, working together on a project identified by the host organisation. It was designed to be a sustainable model of interprofessional education using service learning – a type of practice-based learning where students engage with a community partner to collaborate, reflect and develop outcomes of real world benefit.¹⁰ Although service learning is relatively new to Australian higher education settings, it is increasingly being adopted and is particularly well suited to students in the health professions.¹¹⁻¹²

In theory service learning can lead to mutual benefits and outcomes for community organisations, universities and students, as a result of engaged scholarship and partnerships focused on clearly-articulated local needs and service gaps.¹³ A risk of university-community partnerships is that university needs may be prioritised over those of the community.¹⁴ To avoid this, HHS focused on aspects of social capital that are particularly relevant for rural communities: the Project worked within networks of trusted agents in the community (community-based facilitators, and clinical supervisors)¹⁵ and through its projects attempted to support the service-capacity of essential health institutions in the community.¹⁶ Thus social capital was both an integral factor in the working of HHS and in the outcome of the individual team projects. Students’ reactions, change in perceptions, and the impact of HHS on their behaviour have been described elsewhere.^{17,18} In this paper, we describe the outcomes of the HHS at the level of the rural health service or community, and discuss potential programmatic tensions between focusing on service level outcomes, and outcomes that relate to individual attitudinal and behavioural characteristics.

METHODS

The Health ‘Hubs and Spokes’ Project is described in Box 1.

Study type. This was a qualitative study using semi-structured interviews with 43 local facilitators, academic staff and health professionals (ascertainment, 80% of those involved in delivering the project), and 14 representatives of local health or community services (Table 1).

Setting. Six rural towns in South East NSW, the location for 37 IPL teams of 89 students (82% of the 108 students who participated in IPL placements during the three years of the Project; the remainder undertook placements in the Northern Territory or as single teams in small towns with no rural clinical school staff (7 teams in all), and for logistical reasons are not part of this evaluation). Each town hosted between two and ten teams. The period between the team placements and this study ranged from 6 to 30 months.

Table 1 about here

Data collection. The semi-structured interview schedule addressed informants' views on the HHS, perceived outcomes (positive or negative) from student projects supervised by them, or in their local area, and the impacts of the HHS on the health service organisation or the community. Where a student team had produced a particular resource, informants were asked if these were still in use. Documented evidence of project findings or changes (articles in local newspapers/in-house newsletters; changes in referral patterns) was also investigated. Interviews were conducted by telephone in all except two cases, where the informants provided emailed responses. Telephone interviews were hand-recorded and reconstructed afterwards from contemporaneous notes.

Analysis We undertook a thematic analysis of the documents and interviews, using social capital as a conceptual lens. The focus of this study was therefore on outcomes at the level of the health service organisation: impacts on health workers, or effects for patients or clients, or changes in practice or policy within the organisation. Initial coding of the interviews was performed by one team member (PC), with review and synthesis of all data by other team members to confirm that saturation had been achieved. We categorised outcomes as occurring at several points: increased local awareness of a particular issue addressed by the team; improved communication between different health professions; continued use of the team's product or a changed procedure in response to the teams' work; or evidence of improved use of a particular local health service.

The study was approved by the ANU Human Research Ethics Committee (2010/526).

RESULTS

The total number of students from each discipline included in teams in this analysis is provided in Table 2. Two-thirds of the teams comprised two students; the rest had three or four students. The majority of teams (59%) were medicine/pharmacy combinations.

Table 2 here

Outcomes of IPL team projects

Teams engaged in a variety of different tasks addressing such topics as chronic illness care, clients with intellectual disability in hospital, anticoagulant therapy and roles of community pharmacy. Six teams (16%, all medicine/pharmacy pairs) undertook patient case studies with home medications reviews (HMR). IPL Facilitators who worked with the teams were an essential component of project effectiveness, through promoting interprofessional interaction, facilitating teamwork and monitoring team progress.^{4,19} The facilitators were local residents, recognised for their extensive knowledge and experience of local health services.

Table 3 provides examples of reported outcomes.

Tables 3 about here

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3 *Increased awareness/improved communication between professions:* Respondents reported that at
4 least 10 of the student projects ($\geq 27\%$) resulted in increased awareness of a particular issue or
5 improved communication between professions.
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8 “ It’s a bit early on to say anything conclusive, but it raised awareness [a new discharge
9 information process using ehealth] was happening with the relevant people. It was valuable
10 to include the Medicare Local and XXX Health Service in the audience” (*supervisor, discharge*
11 *information & emerging ehealth*)
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15 *Continued use of a ‘product’ or procedure:* Nine of the 21 (43%) ‘products’ and/or changed
16 procedure developed by students during their placement were still in use at the time of follow up.
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19 “[The project] lead to change in procedures...sorting out who is responsible for what....
20 updated medication guidelines... It also built relationships between medicine and pharmacy
21 that lasts for the first few years after graduation” (*supervisor, peri-operative*
22 *anticoagulation*)
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26 Some projects were able to integrate and build on each other to generate critical mass. For example,
27 a team in the first year reviewed client record documentation for a Cardiac Rehabilitation Program
28 with the aim of improving communication between referring doctors and other health providers.
29 During the following year a second team developed a ‘fridge magnet’ reminder for patients with key
30 messages from the program. In the same year another team developed a Cardiac Rehabilitation
31 Diary to increase the educational component of the Program and to facilitate sharing of information
32 between patients, their doctor and the Program staff. A year later all these products were still in use.
33 Unfortunately a subsequent state-based change in cardiac rehabilitation service protocols made a
34 clean sweep of existing processes, mandating a new record book for use across the state.
35 Nevertheless the increased client engagement, improved structure and efficiency of the Cardiac
36 Rehabilitation Program, and improved interaction between the Rehabilitation team, doctors and
37 patients remained.
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42 “...I found the new documentation on communication across teams to be clear and concise.
43 The documents were approved by the Forms Committee and are now being used...The
44 [Cardiac Rehabilitation] diary was also approved by the Forms Committee, and it is now
45 handed out to patients” (*local health service, cardiac rehab program*)
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50 *Improved use of a service:* According to respondents, five (14%) of the 37 teams contributed to a
51 change in the way services were used. Outcomes from more recent team placements had the
52 potential for improved service delivery but it was too early to be conclusive; for instance, inclusion
53 of an education program on preventing falls among clients is planned for a disability service’ staff in-
54 service training. Other changes were reported by some professional groups but not others.
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“It highlighted the need to be communicating with each other across sectors, and promoted dialogue between the different sectors for which falls are an issue” (*local health service, falls risk prevention*)

“The project has had positive outcomes with regards to a new rehab facility that is being set up. It drove us to new ways of thinking about thrombolysis care for stroke patients in XXX. The doctors were more informed about this. It focussed our thinking on treatment approaches, and that set the scene for more comprehensive treatment of stroke. It definitely helped to increase the profile of allied health professionals (*supervisor, stroke care pathways*)

“The project was very valuable because it was timely. There was good representation across the professions at the student presentation [at the end of the project]. TRACs (Teaching and Research Aged Care Services) now see more stroke patients” (*local health service, stroke care pathways*)

While we had primarily focused on capturing changes in social capital as outcomes of the individual team projects, respondents spontaneously identified several examples of improvements for patients as a result of project work, such as easing the experience of hospitalisation for a patient with intellectual disability in the peri-operative setting, improved peri-operative anticoagulation, the cardiac rehabilitation program and stroke care pathways.

DISCUSSION

This service-learning IPL project generated a number of sustainable interventions and resources for local rural services. Our findings differ from those generally reported for IPL programs that focus on teams working in patient care, where indicators of success are improved care of individual patients.²⁰ In contrast our teams mainly worked on projects with community applicability.

Students were able to work together to contribute to host organisations’ and communities’ social capital. Many of the projects focused on improved connections between health service and community, or between health practitioners. Such connections are critical elements of rural social capital. At the same time, this service learning model was underpinned and reinforced by existing relational social capital in rural communities.¹⁵ Small, close-knit communities helped students fit in; social groups often took students “under their wing”, offering opportunities to participate in local activities. Rural health professional groups are often relatively small with members well known to each other both within and between professions.⁹

This paper documents some evidence for wider benefits resulting from students’ IPL project activities as identified by local actors, helping to re-connect and strengthen interprofessional relationships and build local social capital.^{15,16} While HHS established a symbiosis between service learning and IPL by embedding the students’ IPL experience within real practice-based settings,

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service and experience are parallel objectives.²¹ Team members generating strong service-level or community outcomes in a service learning context may not necessarily attain particularly strong interprofessional educational outcomes for themselves; ie. demonstrable effects at a community level may not be the same as interprofessional engagement, a goal of IPL. While longer term outcomes were not identified, student teams choosing to work on individual patient-focused projects (eg. case reviews with HMR) may have learned more about each other’s roles, communicating interprofessionally and building their skills in collaborative patient care.

Limitations

The study had several limitations. Results reflect the views of interviewees who may demonstrate recall bias in reporting program outcomes that were very successful or failed. Although we attempted to triangulate perceived outcomes with the perceptions of others, this was not always possible. We are unable to comment on the long-term sustainability of HHS since it was a three-year demonstration project. Nevertheless, we note that the contribution and enthusiasm of supervisors and facilitators persisted over the time of the Project.

CONCLUSION

This study considered service-level and community outcomes of IPL placements in six rural towns in South East NSW. Supporting needs of local community has the potential to engage stakeholders and develop social capital, resulting in change that can be sustained beyond the life of the initiative. While we have reported some potential benefits of using a service learning approach to IPL in rural locations, these outcomes may operate in tension with more individual IPL educational outcomes.

Given the limited workforce available in rural areas to supervise clinical IPL placements, the concept of a service learning IPL model that aims to contribute at the health service level may be a useful educational model with dual benefits: it requires less clinical supervisory time and it contributes to local service development. Central to the success of this model were the locally-based IPL Facilitators whose role was not clinical supervision, but conducted formal meetings with student teams that focused on project planning and delivery rather than clinical care. Further iterations of this model should explore collaborations of students from a broader range of disciplines, and prospective, structured documenting of the processes underlying organisational impacts.

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Box 1: The Health 'Hubs and Spokes' Project

Between 2010 and 2012, the Australian National University (ANU) and the University of South Australia (UniSA) collaborated to offer opportunities for senior ANU medical and UniSA allied health, nursing and pharmacy students to undertake IPL teamwork experiences in rural towns; four additional nursing and pharmacy students from Charles Darwin University (CDU) also participated. Local health practitioners suggested small, locally relevant activities for the teams which could provide both local benefit and an opportunity for students to learn interprofessionally and engage with the community.

Each IPL team consisted of a third year ANU medical student and at least one UniSA/CDU pharmacy, nursing or allied health professional student. Students were released from their discipline-specific clinical placement for ½ - 1 day a week for 6 weeks to participate in the IPL activity. One or more IPL Facilitators were appointed at each location; they met weekly with the teams to ensure that the students were making progress and that their learning addressed the stated IPL objectives, working through a series of reflective exercises with the group. Towards the end of the placement the teams reported on their activities to an audience consisting of local health practitioners and community members.

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Table 1: Response rates for informants asked to identify outcomes from the student IPL projects in their local area

Group	Study population (n)	Responses (n)	Proportion
IPL Facilitator	14	12 [†]	86%
Clinical placement supervisors	47	38 [‡]	81%
Rural clinical school staff (academic and senior administrators)	13	11 [§]	85%
Local health service/other informants		14	

[†]33% had more than one role
[‡]26% had more than one role
[§]64% had more than one role

Table 2: Health professional students participating in IPL teams across the 6 rural clinical school sites

Discipline	Student population (n)
Medicine	38
Pharmacy	26
Physiotherapy	8
Occupational Therapy	9
Nursing	8
Total	89

Table 3: Examples of reported outcomes from the student IPL projects and reporting sources

A. Increased awareness/ improved communication			
Student project topic	Product	Reported outcome/s	Reporting sources
a) Short education program for hospital staff on communicating with clients with intellectual disability in the peri-operative setting b) A 'social story' booklet prepared for a particular client with intellectual disability		<ul style="list-style-type: none">Eased time for patient in hospital at the time and during subsequent hospitalisationEnhanced relationships and communication between acute and disability sectorsIncreased awareness for novice medical and nursing staffTraining resource available for new staff	Disability service provider Occupational therapist/supervisor Physiotherapist/supervisor General practitioner/rural clinical school supervisor
Falls risk prevention: an education program for Disability Services staff		<ul style="list-style-type: none">Training resource for staff; planned for future use	Disability service provider
A protocol for timely patient information transfer for Residential Aged Care Facility admissions		<ul style="list-style-type: none">Doctors more aware of required admission informationNursing Home receiving better information flow from local doctorsProposed system not introduced because online system needs to be developed first	Nursing home/supervisor
Discharge information & emerging ehealth: use of Argus as a health communication tool		<ul style="list-style-type: none">Raised awareness of ehealth and need for interprofessional working among relevant groups	Pharmacist /supervisor Medicare Local District hospital Area health service
B. Continued use of 'product'/changed procedure			
Peri-operative anticoagulation	Flowchart: 'Assessment of bleeding & thrombotic risk' prepared operating theatre	<ul style="list-style-type: none">Recommendations formally accepted into proceduresChart still in operating theatre	Pharmacist /supervisor General practitioner/rural clinical school supervisor
Detox in Pregnancy	Patient handouts: 'Smoking in pregnancy', 'Substance use whilst breastfeeding'	<ul style="list-style-type: none">Distributed by hospital pharmacy as neededUsed in maternity ward 'packs' provided to relevant patients	Pharmacist /supervisor General practitioner/supervisor Maternity ward Drug and alcohol service
Review of the client medical record documentation for the cardiac rehabilitation program Cardiac rehabilitation patients' understanding of why they take their medication:	Changed procedures for documentation Fridge magnet: 'Life after cardiac rehabilitation'	<ul style="list-style-type: none">Overall rolling project improved efficiency of Cardiac Rehab ProgramEnsured documentation procedures in line guidelines and best practicePatients provided with recording sheets, diary & magnetIncreased interaction between Rehab Program, doctors and patientsDocumentation and Diary formally approved by local health serviceDiary still used at after 1 yearIncreased level of engagement with Program	Physiotherapist/supervisor General practitioner/rural clinical school supervisor Area health service

A 'Cardiac Rehabilitation Diary'	'Cardiac Diary' prepared for local use		
C. Improved use of service			
Stroke Care Pathways		<ul style="list-style-type: none"> Positive influence on more comprehensive local stroke treatment Increased use of allied health services in early stroke intervention 	General practitioner/ supervisor Occupational therapist/ supervisor Physiotherapist/ health service
Falls risk prevention	Newspaper article on falls related injury prepared by students and published	<ul style="list-style-type: none"> Raised awareness of lack of communication between aged care, community health, acute care sectors Raised falls risk as issue in the Nursing Home Nursing home has employed additional part time staff member to conduct falls risk assessments 	Nursing home/supervisor District hospital Area health service
Pulmonary Rehabilitation Program	Poster: 'COPD Program information for GPs' Patient resources: 'COPD Action Plan'; 'COPD: Information page'; 'COPD: Evidence sheet'	<ul style="list-style-type: none"> Poster placed in all local general practices and hospital raised awareness of existing services Some GPs using the Action Plan Increased recognition of locally available COPD program Increased referrals to local COPD service 	General practitioner/rural clinical school supervisor Area health service